

ABSTRACT

A process and method for projection beam lithography which utilizes an estimator, such as a Kalman filter to control electron beam placement. The Kalman filter receives predictive information from a model and measurement information from a projection electron beam lithography tool and compensates for factors which cause beam placement error such as wafer heating and beam drift. The process and method may also utilize an adaptive Kalman filter to control electron beam placement. The adaptive Kalman filter receives predictive information from a number of models and measurement information from a projection electron beam lithography tool and compensates for factors which cause beam placement error such as heating and beam drift. The Kalman filter may be implemented such that real-time process control may be achieved.